

REMARKS

The Applicants respectfully request reconsideration of this application in view of the above amendments and the following remarks.

Claim Objections

Claims 1-7 have been objected to under 37 CFR 1.75 because of an alleged minor grammatical error.

Applicants respectfully submit that the claims have been amended to overcome the objection. Applicants respectfully request that the Examiner withdraw the objection to the claims.

35 U.S.C. §103(a) Rejection – Creemer, Lee, Culley, Eydelman

Claims 1-15, 17-19, and 21 have been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,014,727 issued to Creemer (hereinafter “Creemer”) and in further view of U.S. Pub. No. 2006/0227799 to Lee (hereinafter “Lee”), the article “Marker PDU Aligned Framing for TCP Specification”, 27 September 2005 (hereinafter “Culley”), and U.S. Publication No. 2005/0235059 to Eydelman (hereinafter “Eydelman”). Without admitting that these references could or should be combined, the Applicants respectfully submit that the present claims are allowable over Creemer, Lee, Culley, and Eydelman.

Claim 1 recites:

“*A method comprising:*

pre-registering each of a plurality of remote direct memory access (RDMA) buffers to a different connection of a plurality of connections;

determining that a pre-registered RDMA buffer of the plurality, which has been pre-registered for a given connection, has insufficient size to transfer data;

sending a control message indicating that a first larger RDMA buffer is to be provisioned for the given connection and that a receiving node is to provision a larger RDMA buffer;

receiving an acknowledgement message from a network corresponding to the control message, the acknowledgement message including information associated with communication with the larger RDMA buffer of the receiving node;

provisioning and registering the first larger RDMA buffer for the given connection, wherein a second larger RDMA buffer is not provisioned and registered for another connection of the plurality, and wherein a size of the first larger RDMA buffer is larger than a size of the pre-registered RDMA buffer; and

transferring the data to the network using the first larger RDMA buffer".

As understood by Applicants, Creemer, Lee, Culley, and Eydelman do not disclose these limitations or render them obvious. In particular, as understood by Applicants, Creemer, Lee, Culley, and Eydelman do not disclose or render obvious "*determining that a pre-registered RDMA buffer of the plurality, which has been pre-registered for a given connection, has insufficient size to transfer data; sending a control message indicating that a first larger RDMA buffer is to be provisioned for the given connection and that a receiving node is to provision a larger RDMA buffer; receiving an acknowledgement message from a network corresponding to the control message, the acknowledgement message including information associated with communication with the larger RDMA buffer of the receiving node,"*" in combination with the other claim limitations.

Creemer discusses in part allocating a first memory space in a memory of a server computer for buffering a first data portion. If a second data portion associated with the message is received at the server computer from the client computer, the method also includes writing the first memory space to a nonvolatile memory of the server computer. The first memory space may be unallocated. Then a second memory space in the memory of the server computer may be allocated for buffering the second data portion, the second memory space being larger than the first memory space.

Lee discusses in part dynamically allocating memory for RDMA data transfers. Lee discusses in part dynamically changing the size of a memory pool by dynamically allocating and de-allocating buffers.

However, Creemer and Lee do not disclose or render obvious “*sending a control message indicating that a first larger RDMA buffer is to be provisioned for the given connection and that a receiving node is to provision a larger RDMA buffer; receiving an acknowledgement message from a network corresponding to the control message, the acknowledgement message including information associated with communication with the larger RDMA buffer of the receiving node*”, in combination with the other claim limitations.

Culley discusses in part MPA requests and replies and formats thereof. However, as acknowledged by the Examiner, Culley does not disclose that “*the control message is indicating a first buffer is to be provisioned for the given connection and that a receiving node is to provision a larger buffer; or wherein the communication is with the larger buffer*”. See e.g., the middle of page 6 of the present Office Action.

Eydelman discusses in part an adaptive flow control protocol. However, Eydelman does not disclose or render obvious obvious “*determining that a pre-registered RDMA buffer of the plurality, which has been pre-registered for a given connection, has insufficient size to transfer data; sending a control message indicating that a first larger RDMA buffer is to be provisioned for the given connection and that a receiving node is to provision a larger RDMA buffer; receiving an acknowledgement message from a network corresponding to the control message, the acknowledgement message including information associated with communication with the larger RDMA buffer of the receiving node*,” in combination with the other claim limitations. In paragraph [0041] of Eydelman, it is discussed that transport provider 126 may send a Resize request message to transport provider 120. However, as explained in this paragraph, this message is sent when the number of fragmentations is above a predetermined level, not when a pre-registered RDMA buffer has insufficient size to transfer data.

Accordingly, as understood by Applicants, Creemer, Lee, Culley, and Eydelman do not disclose these limitations or render them obvious. In particular, as understood by Applicants,

Creemer, Lee, Culley, and Eydelman do not disclose or render obvious “*determining that a pre-registered RDMA buffer of the plurality, which has been pre-registered for a given connection, has insufficient size to transfer data; sending a control message indicating that a first larger RDMA buffer is to be provisioned for the given connection and that a receiving node is to provision a larger RDMA buffer; receiving an acknowledgement message from a network corresponding to the control message, the acknowledgement message including information associated with communication with the larger RDMA buffer of the receiving node,*” in combination with the other claim limitations.

For at least one or more of these reasons, claim 1, and its dependent claims, are believed to be allowable over Creemer, Lee, Culley, and Eydelman.

Independent claims 8, 11, and 15, and their respective dependent claims, are believed to be allowable for one or more similar reasons.

35 U.S.C. §103(a) Rejection – Creemer, Lee, Culley, Eydelman, Kahle

Claim 20 has been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Creemer, Lee, Culley, and Eydelman and in further view of U.S. Patent No. 6,725,354 issued to Kahle et al. (hereinafter “Kahle”).

Claim 20 depends from, and includes all of the limitations of, independent claim 15. As discussed above, Creemer, Lee, Culley, and Eydelman do not disclose or render obvious the limitations of claim 15. As understood by Applicants, Kahle does not remedy **all** of what is missing from these references. Moreover, the Examiner does not appear to have relied upon Kahle as disclosing **all** of these limitations, or articulated where **all** of these missing limitations are found in Kahle. Accordingly, without admitting that these references could or should be combined, the Applicants respectfully submit that independent claim 15, and dependent claim 20, are allowable over Creemer, Lee, Culley, Eydelman and Kahle.

Conclusion

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the cited art of record and are in condition for allowance. Applicants respectfully request that the rejections be withdrawn and the claims be allowed at the earliest possible date.

Request For Telephone Interview

The Examiner is invited to call Brent E. Vecchia at (303) 740-1980 if there remains any issue with allowance of the case.

Request For An Extension Of Time

The Applicants respectfully petition for an extension of time to respond to the outstanding Office Action pursuant to 37 C.F.R. § 1.136(a) should one be necessary. Please charge our Deposit Account No. 02-2666 to cover the necessary fee under 37 C.F.R. § 1.17 for such an extension.

Charge Our Deposit Account

Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

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